

SEQUENCE LISTING

<110> Korea Research Institute of Bioscience and Biotechnology
<120> Multiple stress-inducible peroxidase promoter derived from Ipomoea batatas
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aagtggctgc tagacaacac tctagagtcg tcagtggccg acgtgctctc actacgccta 180
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gtggacgcgcg ccattgatgc agaaacccgc atgggtgctt ccctcattcg cctcttcttc 300
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gtattatctg caggggttgtg acgcaggctc tctactaaac gatacaccta ctttcaccgg 480
agaacagacc gccggcggca ataataactc agtcagaggt tttgaggtga tacaacaagc 540
taaagagaat gtgataacca aatgtcccta catacaagta tcttgcgcg acatcttac 600
cattgctgcc cgtgattctt tccagagagt aagtccattt atttctaaag gttgaaattha 660
ataagaacaa gaatccaaac aaataacaga cagaaaaaaa aaaagattta tgtggttga 720
caatatgtt aatttttat tatatttaat gactagtatt tatgcattat atttataatgc 780
aactctaaac atgcagttt a ctggagaaac gtacaccgtg actctggaa gactcgatgc 840
aagaacggcg aaccttacccg gagctaacac ccaactcgtc ggaccaaacg aggaattggc 900
atcgcaagtc gagaaatttg cggcgaaagg gttctccgaa acggagctag tcgccttgc 960
agggtttcac acgggtgggt tttcgagatg tccgctttt a tgcgttccca ttttcatcaa 1020
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 cgtaggagg tacagggacg agatggacgc ttttcgcgcc gatttcgcgg ccgcgcattgt 1260
 gaagatgagc ctcctgcccgc cgtccccgg agtggagctc gaaatccgag aggtttgcag 1320
 cgaggtgaat gccaacacag ttgcattccat gtgaagttcg ttccatcga catcaataac 1380
 gtctgtgatt ctgtgaaagt ttactcgga ctgtgaagaa ttttcaactt ctgttgttc 1440
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 ataaatttgt ta 1512

<210> 2
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 <212> DNA
 <213> Ipomoea batatas

<220>
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 <222> (1)..(110)
 <223> -110 deletion promoter

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 tcgaccactc atttcttctt catacttcct ttgctgtgat aatcatcatc 110

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 <211> 177
 <212> DNA
 <213> Ipomoea batatas

<220>
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 <222> (1)..(177)
 <223> -177 deletion promoter

<400> 3
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 gaagaacttt ccctttcaag ttctctattn aaggaagcct gagaagccat taatcctcat 120
 catcagctcg accactcatt tcttcttcat acttccttgc ctgtgataat catcatc 177

<210> 4
 <211> 306
 <212> DNA
 <213> Ipomoea batatas

<220>
 <221> promoter

<222> (1)..(306)
<223> -306 deletion promoter

<400> 4
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aaatagtact ccaatcataa taaattatct tatattatat tgccaacaat taaaaattca 120
aattagaaca aattaaatct cagtttgctt tattatatta ttatcaacaa taataattta 180
atactgatcg aagaactttc ccttcaagt tctctattta aggaagcctg agaagccatt 240
aatcctcatc atcagctcgaa ccactcattt ctcttcata cttcccttgc tgtgataatc 300
atcattc 306

<210> 5
<211> 366
<212> DNA
<213> Ipomoea batatas

<220>
<221> promoter
<222> (1)..(366)
<223> -366 deletion promoter

<400> 5
tagtataatg aaataaagtt aatcattctc tatatttgat gatggtaatt agtatcatgg 60
taaggtgttt tatacgatggca gcatgaggatgc atgacaaacg catatattat tattaaaaca 120
aaatagtact ccaatcataa taaattatct tatattatat tgccaacaat taaaaattca 180
aattagaaca aattaaatct cagtttgctt tattatatta ttatcaacaa taataattta 240
atactgatcg aagaactttc ccttcaagt tctctattta aggaagcctg agaagccatt 300
aatcctcatc atcagctcgaa ccactcattt ctcttcata cttcccttgc tgtgataatc 360
atcattc 366

<210> 6
<211> 433
<212> DNA
<213> Ipomoea batatas

<220>
<221> promoter
<222> (1)..(433)
<223> -433 deletion promoter

<400> 6
atggtgactt aaagggtcgaa atccaaacata tattctgaca tttaaaaatg ctaacgtacg 60

gttagattag tataatgaaa taaagttaat cattctctat atttgatgat ggtaattagt	120
atcatggtaa ggtgttttat cgtggcagca tgagtgcag acaaacgc atattattat	180
taaaacaaaa tagtactcca atcataataa attatcttat attatattgc caacaattaa	240
aaattcaaat tagaacaaat taaatctcg tttgctttat tatattatta tcaacaataa	300
taatttaata ctgatcgaag aactttccct ttcaagttct ctatthaagg aagcctgaga	360
agccattaaat cctcatcatc agctcgacca ctcatttctt cttcatactt cctttgctgt	420
gataatcatc atc	433

<210> 7
<211> 818
<212> DNA
<213> Ipomoea batatas

<220>
<221> promoter
<222> (1)..(818)
<223> -818 deletion promoter

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gaagttccat ctatggaaat aacggattat ttatctaatt ttcaaattct atatatata	120
tctcgagtgg aacaaaaata gaactaattt gaacaaatca aagtctaaga aaataataca	180
tgcttttagca gcaaaaataa gaatggtaact atacttaatc ctcatcatag tcttcaaccc	240
tgcatatagc acacttaaca ttttatattc aaatatactt taatttagtc atgataatac	300
aactcaccta ctccattata gccgataata caactcacct agctactcca ttatagtcca	360
acaatataca atgaataaaa tagtaatggt gacttaaagg gctgaatcca acatataattc	420
tgacatttaa aaatgctaac gtacggtag attagtataa tgaaataaaag ttaatcattc	480
tctatatttg atgatggtaa ttagtatcat ggttaagggtgt tttatcgtgg cagcatgagt	540
gcatgacaaa cgcatatatt attataaaa caaaatagta ctccaatcat aataaattat	600
cttatattat attgccaaca attaaaaatt caaattagaa caaattaaat ctcagttgc	660
tttattatatt tattatcaac aataataatt taatactgat cgaagaactt tcccttcaa	720
gttctctatt taaggaagcc tgagaagcca ttaatcctca tcatacgctc gaccactcat	780
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<210> 8

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<211>      1199
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<213>      Ipomoea batatas

<220>
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<222>      (1)..(1199)
<223>      -1199 deletion promoter

<400>      8
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acttttgtaa aaaattttagt tttttttttt gatgaattca tatactccaa agattttcct      120
catattaatta aatttctatc ctcatgttga acccattaat cgaataattt acatattaga      180
taaacttagc catcatatga catttgatca tgatttgatga tttttaaaaaa ataaaaaacaa      240
aattatgaaa gggtaatgaa atattttaaa aaaatttatgt aaaccctgta atcttagtaat      300
ctgtacaata ataattttgt ttcaactaag aggatgttgg caaaagtata attaaacttg      360
tgatcttcgt acaataatta tgcttcacgc actcaactag tcacatctt ccaggcaaaa      420
tttacttttc tatgaatatg agaagttcca tctatggaaa taacggatta tttatctaatt      480
tttcaaatttca tatatatata gtctcgagtg gaacaaaaat agaactaatt tgaacaaatc      540
aaagtctaaag aaaataatac atgcatttgc agcaaaaata agaatggtag tatacttaat      600
cctcatcata gtcttcaacc ctgcatatag cacacttaac attttatatt caaatatact      660
ttaattttatgt catgataata caactcacct actccattat agccgataat acaactcacc      720
tagctactcc attatagtcc aacaatatca aatgaataaa atagtaatgg tgacttaaag      780
ggctgaatcc aacatatatt ctgacatttta aaaatgctaa cgtacggttt gattgtata      840
atgaaataaa gttaatcatt ctctatattt gatgatggta attagtatca tggtaagggt      900
ttttatcggt gcagcatgag tgcacatgacaa acgcatatatt tattattaaa acaaaatagt      960
actccaatca taataaaatca tcttatatttattt tattgccaac aattaaaaat tcaaatttgc      1020
acaaatataaa tctcagtttgc ctttatttata ttattatcaa caataataat ttaatactga      1080
tcgaagaact ttccctttca agttctctat ttaaggaagc ctgagaagcc attaatccctc      1140
atcatcagct cgaccactca tttcttcttc atacttcctt tgctgtgata atcatcata      1199

<210>      9
<211>      1467
<212>      DNA
<213>      Ipomoea batatas

<220>

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<221> promoter
<222> (1)..(1467)
<223> -1467 deletion promoter

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atactactcc aaaaattatg aaattttat gtagcttct acacttatag aactacatgt 120
ataaaaaata ttgggtcaaa ataccttacc gatTTTccc aaatattcac ggaacttact 180
gccagaatct accctgctt ttcctttcac tattttcaca actataagca tatatggca 240
taaatatgac atgaacatgc atgaaccaat gcagggtgaa agtaagattg aatatactga 300
tactacaatt aactaatgat aaagtataac ttttgtaaaa aatttgattt ttttttttga 360
tgaattcata tactccaaag attttcctca ttaattttaa tttctatcct catgttgaac 420
ccattaatcg aataattgac atattagata aacttagcca tcataatgaca tttgatcatg 480
attgatgatt tttaaaaaat aaaaacaaaaa ttatgaaagg gtaatgaaat attttaaaaa 540
aattatgtaa accctgtaat ctagtaatct gtacaataat aattttgttt caactaagag 600
gatgttggca aaagtataat taaacttgc atcttcgtac aataattatg cttcacgcac 660
tcaactagtc acatcttcc aggcaaaatt tactttcta tgaatatgag aagttccatc 720
tatggaaata acggattatt tatctaattt tcaaattcta tatataatgt ctcgagtgga 780
acaaaaatag aactaatttg aacaaatcaa agtctaagaa aataatacat gcttttagcag 840
caaaaataag aatggtaacta tacttaatcc tcataatgt cttcaaccct gcatatacg 900
cacttaacat tttatattca aatatacttt aatttagtca tgataataca actcacctac 960
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tgaataaaaat agtaatggtg acttaaaggg ctgaatccaa catatattct gacatttaaa 1080
aatgctaacg tacggtaga ttatgtataat gaaataaaagt taatcattct ctatatttga 1140
tgatggtaat tagtatcatg gtaagggttt ttatcgtggc agcatgagtg catgacaaac 1200
gcatatattta ttataaaaac aaaatagtac tccaaatcata ataaatttac ttatattata 1260
ttgccaacaa ttaaaaattc aaattagaac aaattaaatc tcagtttgc ttattatatt 1320
attatcaaca ataataattt aataactgatc gaagaacttt ccctttcaag ttctcttattt 1380
aaggaagcct gagaagccat taatcctcat catcagctcg accactcatt ttttcttcat 1440
acttccttgc ctgtgataat catcatc 1467

<210> 10

<211> 1934
<212> DNA
<213> Ipomoea batatas

<220>
<221> promoter
<222> (1)..(1934)
<223> -1934 deletion promoter

<400>	10					
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aatatcatct	ctacttaaac	tagagagatt	tccaaactctc	aattaatcac	caaaggtaac	180
tctccaaata	tccaaatgga	aggttcaac	ttccaaacta	ataccaaacc	aaccggacta	240
atcataatca	tattcataat	cataaattgt	ttctaactgc	ccctgtccag	aaattacagt	300
tttgcgcagt	ccgaaagatt	gagccggtaa	caatagttcc	cgaactctt	ttcacttgaa	360
attttatgg	tagaacccta	acttatacgta	cttgatattcc	ataaaaagtt	ttggtcacct	420
agttcacga	attaacacag	aaaattacat	cttgcctt	ggcagtggc	tgtccggaat	480
tctgtctctc	tggaccagtt	ttggcaaaca	atttgaaac	cacacttata	ctactccaaa	540
aattatgaaa	ttttatggt	agttctaca	cttataagaac	tacatgtata	aaaaatattg	600
ggtcaaaata	cttaccgat	ttttccaaa	tattcacgga	acttactgcc	agaatctacc	660
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taatgataaa	gtataacttt	tgtaaaaat	ttgattttt	ttttgtatga	attcatatac	840
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taatttgaac	aatcaaagt	ctaagaaaat	aatacatgct	ttagcagcaa	aaataagaat	1320
ggtactatac	ttaatcctca	tcatagtctt	caaccctgca	tatgcacac	ttaacatttt	1380
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ataataacaac tcaccttagct actccattat agtccaacaa tatcaaatga ataaaatagt 1500
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 ggtagatta gtataatgaa ataaaggtaa tcattctcta tatttcatgtga tggtatttt 1620
 tatcatggta aggtgtttta tcgtggcagc atgagtgcat gacaaacgcata tatttatttt 1680
 ttaaaacaaa atagtaactcc aatcataatata aattatctta tattatatttgc ccaacaatata 1740
 aaaattcaaa tttagaacaaa tttaaatctca gtttgctttt ttatattttt atcaacaata 1800
 ataatttaat actgatcgaa gaactttccc tttcaagttc tctatatttgc gaagcctgag 1860
 aagccattaa tcctcatcat cagctcgacc actcattttct tcttcataact tcctttgctg 1920
 tgataatcat catc 1934

<210> 11
 <211> 2433
 <212> DNA
 <213> Ipomoea batatas

<220>
 <221> promoter
 <222> (1)...(2433)
 <223> -2433 promoter

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 acttcaagct ctatccccg taggctgcaa caacataacg acataacgac cactggcaa 180
 gggcatttac agccacccgt gggtaatca aggtcctcact cactcactttt agaaactaag 240
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 aaaaaacttt cactgcccgc aggctttca aacatctttt cctcattatc aagtgaggca 420
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 tttagatatttc ttcatatctca agtctcacac ttgaaatcaa tcaagactct tacactaaca 600
 attcctcaat atacctcata atatcatctca tacttaaactt agagagattt ccaactctca 660
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 taccaaaccat accggactaa tcataatcat attcataatc ataaattgtt tcttaactgcc 780

cctgtccaga aattacagtt ttgcgcagtc cgaaagattg agccggtaac aatagttccc	840
gaactcttt tcacttgaaa ttttatggt agaaccctaa cttatagtagtac ttgatatcca	900
taaaaagttt tggtcaccta ggttcacgaa ttaacacaga aaattacatc tttgccctg	960
gcagtgggct gtccggaatt ctgtctctct ggaccagttt tggcaaacaa tttgaaacc	1020
acacttatac tactccaaaa attatgaaat tttatggta gcttctacac ttatagaact	1080
acatgtataa aaaatattgg gtcaaaatac cttaccgatt tttcccaaatt attcacggaa	1140
cttactgcca gaatctaccc tgcttttcc tttcactatt ttcacaacta taagcatata	1200
tgggcataaa tatgacatga acatgcatga accaatgcag ggtgaaagta agattgaata	1260
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tttgatgaa ttcatatact ccaaagattt tcctcattta attaaatttc tattctcatg	1380
ttgaacccat taatcgaata attgacatat tagataaact tagccatcat atgacattt	1440
atcatgattt atgatttttta aaaaataaaaa acaaaattat gaaaggtaa tgaaatattt	1500
taaaaaaatt atgtaaaccc tgtaatctag taatctgtac aataataatt ttgtttcaac	1560
taagaggatg ttggcaaaag tataattaaa cttgtgatct tcgtacaata attatgctc	1620
acgcactcaa ctagtcacat ctttccaggc aaaatttact tttctatgaa tatgagaagt	1680
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agtggAACAA aaatagaact aatttgaaca aatcaaAGTC taagAAAATA atacatgctt	1800
tagcagcaaa aataagaatg gtactatact taatcctcat catagtcttc aaccctgcat	1860
atagcacact taacattttta tattcaaata tactttaatt tagtcatgat aatacaactc	1920
acctactcca ttatagccga taatacaact cacctagcta ctccattata gtccaacaat	1980
atcaaATGAA taaaatagta atggtgactt aaagggtctga atccaacata tattctgaca	2040
ttaaaaaatg ctaacgtacg gtttagattag tataatgaaa taaagttaat cattctctat	2100
atttgatgat ggtaatttagt atcatggtaa ggtgtttat cgtggcagca tgagtgcatt	2160
acaaACGcat atattattat taaaacaaaa tagtactcca atcataataa attatctt	2220
attatattgc caacaattaa aaattcaaatt tagaacaaat taaatctcag tttgctttat	2280
tatattatta tcaacaataa taatttaata ctgatcgaag aactttccct ttcaagttct	2340
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cttcataactt ctttgctgt gataatcatc atc	2433

<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> GSP1 promoter

<400> 12
ctgagccgag tgacaaagga agccat 26

<210> 13
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> AP1 promoter

<400> 13
gtaatacgac tcactatagg gc 22

<210> 14
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> GSP2 promoter

<400> 14
cacagcaaag gaagtatgaa gaagc 25

<210> 15
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> AP2 promoter

<400> 15
actatagggc acgcgtgg 19

<210> 16
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> exon promoter

<400> 16
atggcttcct ttgtcactcg gctcag 26

<210> 17
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> intron promoter

<400> 17
tcatcagctc gaccactcat ttcttcttca 30

<210> 18
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> forward promoter for -2433 deletion promoter

<400> 18
gccaagcttg gtcctcatgg agtattctca taact 35

<210> 19
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer for -1934 deletion promoter

<400> 19
gccaagcttt tgccatctca ccacttcgtc tta 33

<210> 20
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer for -1467 deletion promoter

<400> 20
gccaagcttg gctgtccgga attctgtctc t 31

<210> 21
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer for -1199 deletion promoter

<400> 21
gccaagctta tgcagggtga aagtaagatt gaa 33

<210> 22
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer for -818 deletion promoter

<400> 22
gccaagcttg cttcacgcac tcaact 26

<210> 23
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer for -433 deletion promoter

<400> 23
gccaagctta tggtgactta aagggtgaa tcc 33

<210> 24
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer for -2433, 1934, 1467, 1199, 818, 433, 366, 306, 177 and 110 deletion promoter

<400> 24
tcctctagag atgatgatta tcacagcaa ggaa 34

<210> 25
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer for -366 deletion promoter

<400> 25
ttcctgcaga tagtataatg aaataaaagtt a 31

<210> 26
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer for -306 deletion promoter

<400> 26
tttctgcagt aagggtttt atcgta 26

<210> 27
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer for -177 deletion promoter

<400> 27
ttcctgcaga aattaaatct cagtt 25

<210> 28
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer for -110 deletion promoter

<400> 28
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